EXCERPTS FROM PROPOSITION 103 TESTIMONY

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What is the purpose of your testimony?

The purpose of my testimony is to demonstrate how the rate of return resulting from a particular rate may be calculated using the discounted return methodology and how it is used in the ratemaking process. Since I have been vitally involved in the development and application of this methodology, I am here to offer a hands-on perspective of how this is applied in actual practice--to ratemaking and other areas.

What general characteristics are embodied in the discounted return methodology?

First, the DRM is a total return methodology. Income from both underwriting and investment is included. Second, the DRM

utilizes a "benchmark surplus" standard as a base in the calculation of return. Third, the DRM provides a method for calculating return regardless of whether return is calculated on a group, company, or line of business basis. This flexibility is intended to allow for recognition of an insurer's unique business characteristics and mix. Finally, by discounting future receipts/payouts, the DRM calculates return and the various return components in today's dollars.

What insurance regulatory objectives does the Discounted Return Methodology achieve?

The DRM is consistent with the insurance regulatory objectives of maximizing the protection of policyholder funds, and minimizing the risk of insolvency. It maximizes the protection of policyholder funds by assuming that these funds are invested in risk free Treasuries with maturities matching expected liability payouts. This insures that the funds will be available when needed to pay losses.

The DRM minimizes the risk of insolvency by establishing prudent levels of leverage. A minimum, or "benchmark" surplus is established after consideration of the characteristics of the business in question. These characteristics include the effected amount and variability of the financial exposure. In simpler terms, this is derived mainly from the amount and

timing of future loss payments and the expected variability in this amount and timing.

Lastly, the DRM offers an approach which has sufficient flexibility to respond to real world differences in individual company and business.

Please explain the Discounted Return Methodology.

The DRM methodology is intended to provide a measurement of return from all sources of income pertaining to a specific segment of business, valued at the time the business is written. This measurement of return is typically by individual accident year. The five components of income (or loss) as shown in Exhibit A are: underwriting, investment income on insurance cash flows, investment income on benchmark surplus, investment income on residual surplus and other income.

Since most insurance operating expenses (e.g. loss payments) occur in the future, their timing as well as magnitude must be considered in the calculation of income. Discounting to present value recognizes the time value of money and includes this resultant investment income as part of operating income. The principal cash flows considered are premium receipts, loss and expense payments, and prepayment of tax due to both the

loss discounting and the 20% unearned premium offset provisions of the new tax law.

The paramount importance of meeting policyholder liabilities dictates certain investment principles aimed at reducing risk. Under the DRM, operating cash flows are assumed to be invested only in "risk free" treasury securities and in maturities that match the average duration of liabilities (i.e. average loss payout). This effectively isolates operating income, and therefore policyholders, from investment risk caused by either fluctuating interest rates or market volatility. As a result, prices charged for insurance would not reflect these market risks.

Investment in bonds with maturities longer than indicated by loss payouts would expose the principal to an increase in interest rates since the value of bonds would drop accordingly. Investment in bonds with shorter maturities would result in a reduced yield if interest rates were to fall since reinvestment of funds at a lower rate would be required until the payment of the liability.

Operating Income is the sum of underwriting income and the investment income derived from policyholder supplied funds invested consistent with these principles, on an after tax basis. Calculation of total rate of return requires that this

be measured in relation to some amount of capital, after adding investment income on this capital.

Benchmark surplus is that amount of capital that is necessary to enable an insurer to carry on its insurance operations subject to control of the solvency risk. The amount of this benchmark surplus is a function of the characteristics of the insurance exposure to which it relates. This must be determined with due recognition given to both the magnitude and the volatility inherent in the financial exposure in a line of business. Determination of an appropriate benchmark is a complex but necessary task under the DRM.

As with operating cash flows, benchmark surplus also is assumed to be invested in risk free treasuries. Less than 100% of benchmark surplus is invested, because a portion of the benchmark surplus is invested in the normal overhead such as the plant and equipment required for the insurance operations and which does not produce investment income. Total benchmark return for ratemaking purposes is the sum of income from underwriting, investment income from insurance cash flows, and investment income from benchmark surplus expressed as a percentage of benchmark surplus.

It is a total return methodology in that it includes income from policyholder supplied funds, underwriting and the

benchmark surplus. Income (or loss) derived from riskier investments and greater (or less) than required surplus is not included at this point in the analysis.

The DRM does not use imbedded or portfolio yields for two reasons. First, it lacks the risk free attributes of treasury bonds that I have already mentioned. Second, and equally as important, I believe that it contradicts the fundamental principle of ratemaking which requires that all prospective revenue and expense be considered. We need to know what investment income can be anticipated in the future, not what we have achieved in the past. It is the interest rate on new money that matters.

The portfolio imbedded yield is the result of past investment policy and underwriting results. The imbedded yield is, in fact, largely due to the realization of investment income from previous accident year cash flows, especially loss reserves. To use this prospectively is inappropriate. Ratemaking must properly reflect future interest rates.

A summary of the methodology is shown in Exhibit B to demonstrate all the required assumptions and the results of this methodology.

Please explain how the benchmark surplus concept is related to risk.

Two sources of risk inherent to an insurance company are insurance and investment activities. If underwriting cash flows are invested at a "risk free" rate and maturities match liabilities (i.e. loss payouts), operating income will essentially be isolated from the effects of investment policy and market volatility. As a result, insurance risk will be dependent primarily on underwriting. It should be noted that the effectiveness of such an investment policy is affected by the degree to which actual payouts differ from those expected.

Investment risk results from the investment policy of the company concerning types of investments and maturities, which gives rise to yield and default risks and related volatility.

Solvency risk results from the exposure of surplus to both the insurance and the investment risk. The magnitude and volatility of underwriting losses together with fluctuating investment results are key determinants of this risk.

An important aspect of the DRM and management of the solvency risk involves the determination of the proper level of minimum surplus. Surplus is a buffer whose minimum size must be

determined through recognition of both the magnitude and volatility of financial exposure inherent in the line of business to which it relates in order to ensure a low probability of insolvency. Surplus should be a function of two factors:

1) The degree and magnitude of financial exposure. This essentially is the amount and length of time over which funds are committed to pay the liabilities of a respective line of business.

2) The volatility in this funding requirement created by the variability in underwriting and investment. Increased surplus is required to maintain a low probability of insolvency in the face of increased volatility.

How is the appropriate amount of benchmark surplus determined?

Liability funding requirements are determined by line of business to determine the magnitude of financial exposure. The amount of assets that are needed to fund (i.e. to pay) the liabilities for a particular level of business are determined. Specifically, it is the present value equivalent in assets that are required to meet the liabilities inherent in all expected future cash flows. It is based on the magnitude of the cash flows and the length of time that it takes to settle

them, discounted to present value.

Total funding across all lines of business determines the total invested assets that must be committed by a company to support all writings.

Benchmark surplus is set initially for all lines of business in direct proportion to funding requirements (i.e. money at risk). If the timing and magnitude of future operating cash flows were known with a high degree of certainty, only a small amount of surplus would be needed. However, since most insurance cash flows are in the future and are volatile and uncertain, an increased buffer must be established to recognize this fact. The degree of volatility and uncertainty varies among lines of business and the surplus must vary accordingly. In this regard insurance differs substantially from banking and other financial services.

While characteristics such as catastrophe and earthquake exposure introduce obvious volatility, the increasing complexity of insurance together with the nature of the prospective costs of providing the insurance also introduces a great deal of financial uncertainty into the process. This must be reflected in the methodology employed to determine a final benchmark surplus.

The calculation of funding involves several factors which are subject to variability. The variability associated with these factors is the key to the determination of benchmark surplus.

The parameters upon which funding is based include:

- premium amount and timing of collection
- expense amount and timing of payment
- loss amount and timing of payment
- tax law loss discount factor and timing
- proportion of premium unearned at year-end
- market interest rate
- tax rate

The most dominant factors in terms of variability are loss amount and timing of payment. The variability in all other factors, for typical lines of business, has relatively minor effect by comparison.

In summary, benchmark surplus is established as a buffer whose minimum size must be determined by recognizing both the magnitude and volatility of financial exposure inherent in the line of business to which it relates in order to ensure a minimal risk of insolvency.

How does the benchmark surplus concept compare to the Department's leverage norms?

The Department's approach differs from the concept of benchmark surplus in four ways:

First, the Department has primarily used the loss reserve liability as the basis for establishing these benchmarks. Under the DRM, the additional liabilities associated with premium collection, expense payment, and tax payment due to loss discounting and the unearned premium offset are also considered. The amount and timing of these liabilities are used to determine a net liability, on a discounted basis.

Second, the Department's overly simplified approach gives no consideration to the variability inherent in the insurance business. The calculation of historical ratios of loss reserves to surplus does not recognize the degree to which losses and reserves can vary over time. This most critical aspect has been completely ignored. The leverage ratios set by the Department do not allow companies to reflect their individual risk characteristics. This flexibility is necessary.

Third, the long established 2/1 overall leverage level has

evolved over the years from experience and judgement of the riskiness of insurance. The NAIC and A.M. Best both implicitly endorse a 2/1 level. Until proven incorrect, this tradition should not be ignored. Any method should, at least as a check, calculate an all lines total for comparison to this figure. The Department's leverage norms clearly fail in this test, averaging approximately 2.5 or more, and an artificially low 1.3 leverage factor in workers' compensation is needed to bring the total down to 2/1.

The increasing complexity of insurance and the liberal interpretation of coverage conditions make it ever more difficult to forecast the future. Generally, industry leverage has been declining over recent years, in part reflecting this increased business uncertainty. Concern over solvency should, if anything, support movement below the 2/1 norm rather than above it.

Finally, the Department's factors are much too crude, having been rounded to whole numbers except in the case of Automobile Liability. There is a major difference in 1/1, 2/1 and 3/1, etc. and the use of such crude norms is not sufficiently sensitive to reflect the true differences among lines of insurance.

The Department's approach is so lacking in foundation and

substance, that its use could produce distorted results. For this reason, and further since no single set of benchmark leverage norms can apply to each and every company, the Department should use an overall 2/1 ratio as a guide in the review process.

How could the Department utilize the benchmark surplus concept in reviewing rates?

I would recommend that companies that determine rates on a total return basis by line provide it's own benchmarks calculated based upon its own unique characteristics and utilizing its own ratemaking methodology. These benchmark leverage factors would simply be another input to the ratemaking process, much like loss trends factors and loss development factors that would be subject to review. The average of the benchmark leverage factors should approximate 2/1 on an overall basis.

For those companies that do not assign a leverage factor by line of business, choosing instead to use a return on premium approach to ratemaking, the Department should use an overall 2/1 average as a flexible guideline to convert from total return to return on premium. In no case should an inflexible set of leverage norms or benchmarks be imposed on all companies.

Do you believe surplus is divisible?

I acknowledge that all surplus of a company ultimately supports every line of business. However, for ratemaking purposes, I believe it is appropriate to assess the risk/return relationship among the lines of business within a multi-line insurance company in much the same way as it is done from industry to industry.

The DRM employs benchmark surplus for ratemaking purposes as a method to evaluate and quantify differences in risk by line consistent with a total return methodology.

Please explain further how benchmark return differs from a company's actual total return.

The benchmark return will differ from actual results in two ways. First, policyholder funds are assumed to be invested in risk free Treasury securities for reasons outlined earlier. Second, a benchmark surplus is established, based on the control of solvency risk. The benchmark return is calculated as the income from underwriting and the investment income from policyholder funds and benchmark surplus divided by the benchmark surplus. The DRM mathematically reflects income from all sources that relate to the basic insurance operation

- underwriting, investment income of policyholder funds and supporting surplus.

The benchmark return will differ from actual total return, which is based on reported income and surplus. Benchmark return may be either more or less than actual total return. Actual stock market experience and the realization of capital gains, for example, will largely determine whether actual or benchmark returns are greater. In this context, the risks and rewards of investment and capital management policies are borne entirely by the owners of the company and reflected when published in the total company return.

Explain how the Discounted Return Methodology is utilized in ratemaking, and how the Discounted Return Methodology relates to a return on premium approach.

In ratemaking, a desired benchmark return on surplus is selected first and the premium level is "backed into". This is a short step from the traditional return on premium (ROP) approach which backs into the premium level based solely on a selected ROP. The following benchmark return formula (see Exhibit A) is used.

Return on Benchmark Surplus

= Return on Premium x Premium to Benchmark Surplus ratio + Investment Rate on Benchmark Surplus

$$BROS = ROP \times (P/S) + R$$

A premium to benchmark surplus ratio and investment rate on benchmark surplus are the only additional requirements beyond those assumptions and data bases required for ROP ratemaking. Exhibit C offers an example of how this would work.

Application of this methodology simply requires determination of individual company and line of business characteristics regarding the following input assumptions:

- Expense ratio
- Investment yield curve (treasuries)
- Premium, expense, and loss collection and payout patterns (i.e. average payment dates)
- Benchmark leverage
- Target benchmark return

No opinion is being expressed as to what the fair rate of return should be. The method simply provides a basis for calculation of a premium once this rate of return is provided.

Would you summarize the principle advantages of the discounted return methodology?

The DRM satisfies the statutory requirement of reflecting investment income in ratemaking. The DRM offers the greatest protection of policyholder supplied funds by investing in risk free Treasury bonds where maturities match expected payouts. Together with prudent levels of surplus established for each line of business, a total return is calculated in a consistent manner.

The DRM offers a sound, practical means for accomplishing many of the Department's objectives, while still maintaining a large degree of flexibility to reflect individual company characteristics.

Does this conclude your testimony?

Yes.

EXHIBIT A

Sources of Income

- Underwriting
- Investment of Insurance Cash Flows
  (e.g. Loss Reserves prior to Loss Payment)
- Investment of Benchmark Surplus
- Investment of Residual Surplus.
- Other Income

Formula Summary

Operating Income = Underwriting Income + Investment Income on Insurance Cash Flows

Return on Premium (ROP) = Operating Income / Premium

Total Benchmark Income = Operating Income + Investment Rate on Surplus (Rs) x Benchmark Surplus

Return on Benchmark Surplus (BROS) = Total Benchmark Income / Benchmark Surplus

$$BROS = ROP \times (P/S) + Rs$$

Total Income = Total Benchmark Income + Residual Income

Total Return on Total Surplus (TROS) = Total Income / Total Surplus

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Notes: All Items are After Tax.
Discounted Return values all items at a single point in time, usually when the policy is written.

EXHIBIT B : Calculation of Return

Input Assumptions

	$	Ratios
FINANCIALS		
Premium	$100.0	
Loss & Loss Expense	$83.0	83.0%
Underwriting Expense	$27.0	27.0%
Combined Loss and All Expense	$110.0	110.0%
AVERAGE TIMING OF RECEIPTS/PAYMENTS (in Years)		
Premium	0.25	
Loss & Loss Expense	2.30	
Underwriting Expense	0.25	
TAX AND INVESTMENT		
Tax Rate	34%	
Investment Yield		
Before Tax	8.50%	
After Tax	5.61%	
Tax Loss Discounting - Average Date	2.30	
- Discount Rate	8.16%	
Year End % Premium Unearned	50%	
SURPLUS		
Benchmark Premium/Surplus	2.0	
Investment Yield on Surplus After Tax	5.61%	
Adjusted for Overhead of 10%	5.05%	

Results (After Tax)

Underwriting Income		($6.60)
Investment Income Credit (at Present Value)		
Premium	($1.36)	
Loss & Loss Expense	$9.79	
Underwriting Expense	$0.37	
Tax Loss Discounting	($0.41)	
Tax Unearned Premium	($0.18)	
Net Investment Income Credit	$8.22	
Operating Income		$1.62
Operating Return on Premium		1.6%
Total Benchmark Return		8.3%

EXHIBIT C : Ratemaking to Achieve a 17% Return

Input Assumptions

FINANCIALS	$	Ratios
Premium	$110.6	
Loss & Loss Expense	$83.0	75.0%
Underwriting Expense	$29.9	27.0%
Combined Loss and All Expense	$112.9	102.0%
AVERAGE TIMING OF RECEIPTS/PAYMENTS (in Years)		
Premium	0.25	
Loss & Loss Expense	2.30	
Underwriting Expense	0.25	
TAX AND INVESTMENT		
Tax Rate	34%	
Investment Yield		
Before Tax	8.50%	
After Tax	5.61%	
Tax Loss Discounting - Average Date	2.30	
- Discount Rate	8.16%	
Year End % Premium Unearned	50%	
SURPLUS		
Benchmark Premium/Surplus	2.0	
Investment Yield on Surplus After Tax	5.61%	
Adjusted for Overhead of 10%	5.05%	

Results (After Tax)

Underwriting Income		($1.48)
Investment Income Credit (at Present Value)		
Premium	($1.50)	
Loss & Loss Expense	$9.79	
Underwriting Expense	$0.40	
Tax Loss Discounting	($0.41)	
Tax Unearned Premium	($0.20)	
Net Investment Income Credit	$8.09	
Operating Income		$6.61
Operating Return on Premium		6.0%
Total Benchmark Return		17.0%

ATTACHMENT 1
GENERAL DEFINITIONS AND FORMULAS

Underwriting Income = (P-E-L) (1-T)

Where P= Premium, E= Expense, L= Loss, T= Tax Rate

Nominal Basis

Operating Return = Underwriting Income
+ Investment Income on Insurance Liabilities

Total Return = Operating Return
+ Investment Income on Surplus

Discounted Basis

Operating Return = Underwriting Income
+ Investment Income Credit on Insurance Float

Investment Income Credit (IIC) = Present value of Investment Income on All Cash Flows related to the Accident Period

Premium	IIC	=	-(1-Dp) P
Expense	IIC	=	(1-De) E
Loss	IIC	=	(1-Dl) L
UPR Tax	IIC	=	-(1-Du) (.21) P U

Disc Tax IIC : See Attachment 2 for formula

Where D = 1/(1+R)^N I.e. Discount Factor
R = rate for calculating discount, after tax
Rb = tax law discount rate before tax
N = average payment date for Premium, Expense, or Loss, respectively
for Du, N = 1, UPR tax recovery payment date
U = Annual Premium year end Unearned factor (I.e. Unearned Premium/Premium)

Nominal/Discounted Reconciliation

Discounted Operating Return = Nominal Ending Total Return / (1+R)^N,

Where N is the ending period when all insurance cash flows have been settled

All dollar figures and discount factors are After Tax except discount factor for Loss Discounting using Rb, the tax law discount rate.

ATTACHMENT 2
LOSS DISCOUNTING INVESTMENT INCOME CREDIT FACTOR
(Factor times Loss for $ Impact)

1) Actual and Law Rates and Payouts Same

$$-\{ (Db-Da) + T(1-Db) \}$$

Where D = 1/(1+R)^N, i.e. Discount Factor
R = rate for calculating discount
N = payment date
b = before tax
a = after tax
T = tax rate
Da = 1/(1+Ra)^N
Ra = (1-T)Rb

2) Actual and Law Rates Different, Payouts Same

$$-\{ (Dr'b-Da) + T(1-Dr'b) \}$$
$$+ (Dr'b-Da)(Ra-R'a)/(Ra-R'b) \quad \text{(Rate Adjustment)}$$

Where ' signifies using law rate

3) Actual and Law Rates and Payouts Different

$$- \{ (Dn'r'b-Dn'a) + T(1-Dn'r'b) \}$$
$$+ (Dn'r'b-Dn'a)(Ra-R'a)/(Ra-R'b) \quad \text{(Rate Adjustment)}$$
$$+ TDa ((1-Dn''r'b) - (Dn''r'b-Dn''a)R'b/(Ra-R'b)) \quad \text{(Date Adjustment)}$$

Where ' signifies using law rate or payment date
n'' = n'-n i.e. difference in payment date

Effect of different Rates is greater than Payout differences and Formula 2) is sufficiently accurate for most applications.

Lower case letters are subscripts and not numeric values.

An approximate formula to the above is

$$- T \{ (1-Dmra) \times (1-Dn'r'b) \}, \text{ where } m = (n+1)/2$$
$$= - T \{(1-1/(1+Ra)^m) \times (1-1/(1+R'b)^n')\}$$